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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/714,103

11/14/2003

Jun Chen

TI-36559

2715

23494

7590

04/21/2006

TEXAS INSTRUMENTS INCORPORATED

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EXAMINER

DEBERADINIS, ROBERT L

ART UNIT

PAPER NUMBER

2836

DATE MAILED: 04/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/714,103

Applicant(s)

CHEN ET AL.

Examiner

Robert DeBeradinis

Art Unit

2836

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 9-24 is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 11/14/03.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over
LENK 6,222,352 in view of LU 5,715,153.

Regarding claim 1.

LENK discloses a single-inductor dual output buck converter comprising a power source (12) a first output (36) that selectively obtains power from the power source through an inductor (18) and a second output (28) that selectively obtains power from the source through the inductor (18).

LENK does not disclose the second output that selectively obtains power from the first output through the inductor.

LU teaches buck converter (200) is in cascade arrangement with converter (100), thus two separate power trains are not required (col. 4, lines 35-49).

It would have been obvious to one having ordinary skill in the art at the time of this invention to have modified the single-inductor dual output buck converter to have the converters arranged in cascade thus gaining greater flexibility in the distribution of power (col. 4, line 41).

Regarding claim 2.

LENK in view of LU disclose the converter of claim 1.

LU discloses a first switch (14) that controllably provides power from the power source to the first output.

Regarding claim 3.

LENK in view of LU disclose the converter of claim 2.

LENK in view of LU does not teach the second switch controllably provides the power from the first output to the second output.

LU teaches cascading converters and LENK teaches second switch (22) that controllably provides the power from the single-inductor to the second output.

It would have been obvious to one having ordinary skill in the art at the time of this invention to rearrange the converts in a cascade configuration and modify the switch control timing so that the second output selectively obtains power from the first output through the inductor. The motivation for the change would be to gain greater flexibility in the distribution of power (LU col. 4, line 41).

Regarding claim 4.

LENK in view of LU disclose the converter of claim 1.

LENK teaches wherein the first capacitor stores a charge and is in parallel to first load.

Regarding claim 5.

LENK in view of LU disclose the converter of claim 4.

LENK teaches wherein the second capacitor stores a charge and is parallel to the second load.

Regarding claim 6.

LENK teaches a third switch (16) connected to the inductor that selectively causes inductor current to decrease to zero.

Regarding claims 7, 8.

LENK in view of LU disclose the converter of claim 1.

LENK teaches 3 volt and 2 volt converters (col. 1, line 43).

Allowable Subject Matter

Claims 9-24 allowed.

The following is a statement of reasons for the indication of allowable subject matter: the prior art of record does not teach or suggest a second switch having a first terminal and a second terminal, wherein the first terminal is connected to the second terminal of the first switch and a second output connected to ground and the second terminal of the second switch.

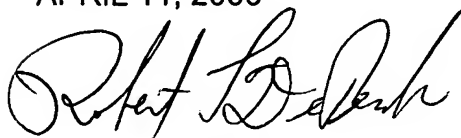
Any inquiry concerning this communication should be directed to Robert L. DeBeradinis whose number is (571) 272-2049. The Examiner can normally be reached Monday-Friday from 8:30 am to 5:00 pm.

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If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Brian Sircus, can be reached on (571) 272-2058. The Fax phone number for this Group is (703) 872-9306.

RLD

APRIL 11, 2006

A handwritten signature in black ink, appearing to read "Robert L. DeBeradinis". The signature is fluid and cursive, with the first name "Robert" and last name "DeBeradinis" clearly distinguishable.

ROBERT L. DEBERADINIS
PRIMARY EXAMINER